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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,215	08/11/2003	Boaz Porat	83143	1259
7590		08/05/2005	EXAMINER	
Welsh & Katz		DEPPE, BETSY LEE		
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120 South Riverside Plaza		PAPER NUMBER		
Chicago, IL 60606-3913		2637		

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

X

Office Action Summary	Application No. 09/869,215	Applicant(s) PORAT ET AL.	
	Examiner Betsy L. Deppe	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 15-19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 15-19 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the amendment filed May 23, 2005.

Drawings

2. The drawings are objected to because:
 - a. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
 - b. In Figure 2, the arrows associated with "6-1" through "6-N" should be reversed in order to be consistent with page 7, lines 11-14.
 - c. The elements in Figures 2-4, 6, 8a and 8b should be labeled so that one viewing the drawings may understand the subject matter of the claimed invention without referring to the detailed description.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Step 6-1 in figure 8b. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract

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on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it includes legal phraseology often used in patent claims, such as "comprising". Correction is required. See MPEP § 608.01(b).

6. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

7. The disclosure is objected to because of the following informalities:

- a. the specification does not include section headings in accordance with 37 CFR 1.77(b);
- b. the claim numbers on page 2, lines 1-2 should be deleted in order to avoid potential inconsistencies with any subsequent changes to the claim numbers;
- c. on page 4, line 7, "PSD" is not defined;
- d. on page 6, line 23, "additional units" should be "a wake-up signal generating unit" (see page 8, line 25) for a more accurate description of the figure;
- e. on page 6, line 26, "of a wake-up signal detection unit" (see page 9, lines 34-35) should be inserted after "diagram" for a more accurate description of the figure;
- f. on page 6, line 32, the Examiner suggests inserting "bit pattern" after "diagram of" for a more accurate description of the figure; and
- g. on page 13, line 9, "identically" should be "identical."

Appropriate correction is required.

Claim Objections

8. The claims are objected to because of the following informalities:
- a. in claim 1, line 1, "Method" should be "A method";
 - b. in claim 1, line 7, "a received demodulated signal" should be "the demodulated received signal";
 - c. in claim 1, line 10, the first two occurrences of "the" should be "a" and "an," respectively, the comma should be deleted and "the demodulated wake-up signal" should be "the demodulated received signal" ;
 - d. in claim 1, line 13, "a received" should be "the received";
 - e. in claim 1, line 17, "a bit pattern comparing means" should be "the comparing means" (see line 7) in order to be consistent with the described invention;
 - f. in claim 1, line 25, "modulated" should be "demodulated";
 - g. in claim 8, line 5, "a received" should be "the received";
 - h. in claim 8, line 12, "comparing means" should be "the bit pattern comparing means" (see line 9) and "a received demodulated signal" should be "the demodulated received signal";
 - i. in claim 8, line 15, the first two occurrences of "the" should be "a" and "an," respectively, and "the demodulated wake-up signal" should be "the demodulated received signal";
 - j. in claim 8, line 19, both "a" and "an" should be "the";

- k. in claim 10, "claim 1" on line 2 should be "claim 9" since claim 9 recites an "xDSL transfer system" that generates the wake-up bit pattern (see claim 9, lines 1-3).
- l. in claim 11, line 2, "claim 1" should be "claim 9" or "claim 10";
- m. in claim 15, line 10, the comma should be deleted and "is" should be "are"
- n. in claim 16, line 3, the comma should be deleted;
- o. in claims 17 and 18, "claim 1" on line 2 should be "claim 8"
- p. in claim 19, line 8, "the central" should be "a central";
- q. in claim 19, line 12, "a received demodulated signal" should be "the demodulated received signal";
- r. in claim 19, line 15; the first two occurrences of "the" should be "a" and "an," respectively, the comma should be deleted and "the demodulated wake-up signal" should be "the demodulated received signal" ;
- s. in claim 19, line 18, "a received" should be "the received";
- t. in claim 19, line 22, "a bit pattern comparing means" should be "the comparing means" (see line 12)
- u. in claim 21, line 5, "a received demodulated signal" should be "the demodulated received signal";
- v. in claim 21, line 8, the first two occurrences of "the" should be "a" and "an," respectively, the comma should be deleted and "the demodulated wake-up signal" should be "the demodulated received signal"; and
- w. in claim 21, line 17, the comma should be deleted and "is" should be "are."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-11, 15-19 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are vague and indefinite for the following reasons.

11. With regard to claims 1-7, "the xDSL modem" and "the central office" in claim 1, lines 2-3 lack sufficient antecedent basis in the claim. It is also unclear how "the xDSL modem within the central office" relates to "an xDSL user modem" on lines 1-2 and "a corresponding xDSL modem" on line 2. The respective dependent claims are also rejected under the same ground as independent claim 1.

12. With regard to claims 1-7, since the recited steps in claim 1, lines 24-28 may be performed by the various recited means comprising the xDSL modem within the central office (see claim 1, lines 3-11), it is unclear if the recited steps are performed by the various recited means in the xDSL modem within the central office or are performed by other means. The respective dependent claims are also rejected under the same ground as independent claim 1.

13. With regard to claims 8-11 and 15-18, it is unclear if "said xDSL modem" in claim 8, line 2 is referring to the "xDSL user modem" on line 2 or another xDSL modem.

Based on the detailed description, the limitations recited on lines 3-16 do not comprise an "xDSL user modem." However, "said" in the claim suggests that "xDSL modem" is referring to the "xDSL user modem." The respective dependent claims are rejected under the same ground as independent claim 8.

14. In claim 8, it is unclear if the limitations recited on lines 6-16 comprise the "said xDSL modem" (see line 2) or the demodulating means (see lines 3-4). The respective dependent claims are also rejected under the same ground as independent claim 8.

15. In claim 8, lines 16-17, it is unclear how "connected via a data transfer medium to corresponding xDSL modem within a central office" relates to the other limitations recited in claim 8. The respective dependent claims are also rejected under the same ground as independent claim 8.

16. In claim 8, "the corresponding xDSL modem" and "the central office" on line 19 lack sufficient antecedent basis. The respective dependent claims are also rejected under the same ground as independent claim 8.

17. In claim 19, it is unclear if "the xDSL modem" on line 8 is referring to the "xDSL user modem" on line 1 or another xDSL modem. Based on the detailed description, the limitations recited on lines 9-22 do not comprise an "xDSL user modem." However, "the" suggests that "xDSL modem" on line 8 should be "xDSL user modem" which is not described in the specification. To overcome this rejection, claim 19 can be rewritten as a system comprised of an xDSL user modem and an xDSL modem within a central office wherein the an xDSL user modem is comprised of the limitations on lines 2-7 and the xDSL modem within a central office is comprised of the limitations on lines 9-22.

18. Claim 21 is vague and indefinite because it is unclear what comprises the "xDSL system" on line 1. The limitations on the subsequent lines comprise an xDSL modem within a central office but there are no limitations comprising or associated with the "xDSL system" on line 1.

19. Claim 21 recites the limitation "the asynchronous pulse train" in line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

20. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

21. Claims 1-4, 8-11, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vitenberg (WO 00/02335 cited in the Office Action mailed February 10, 2005) in view of Uppunda et al. (US Patent No. 6,678,728 B1 cited in the Office Action mailed February 10, 2005), Crawford (US Patent No. 6,496,549 B1) and Abbate et al. (US Patent No. 5,077,552 cited in the Office Action mailed February 10, 2005).

22. With regard to claims 1, 8 and 9, Vitenberg discloses the claimed invention including a xDSL modem (509 and 560) in a central office comprising a demodulating means (see 16 in Figure 13) and a wake-up command generating means (see page 14, paragraph 2) wherein a xDSL user modem generates a wake-up signal (see "activation signal" on page 14, paragraphs 1 and 3) to the corresponding xDSL modem in the central office. However, Vitenberg does not disclose the recited details of the

demodulating means, the recited storing means, or the recited comparing means.

Furthermore, Vitenberg does not teach using a pulse-length modulated signal.

Uppunda et al. teaches a storing means and a comparing means. (See column 3, lines 48-56) It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Uppunda et al. into Vitenberg in order to reduce overhead (see Uppunda et al., column 3, lines 56-58) and to avoid inappropriately exiting sleep mode if an invalid wake-up pattern is received.

Crawford teaches a demodulation/detection circuit comprised of a gain sequencer for amplifying a received analog signal, a rectifying means, a low pass filter and a comparator. (See column 3, lines 18-28) It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the circuit disclosed by Crawford in the demodulator Vitenberg in view of Uppunda et al. in order to accurately recover the transmitted data.

Abbate teaches transmitting pulse-length modulated signals. (See "pulse width modulated" in column 8, lines 20-24) It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the modulation method taught by Abbate in the system disclosed by Vitenberg in view of Uppunda et al. and Crawford in order to utilize a simple well-known modulation method.

Since Vitenberg in view of Uppunda et al., Crawford and Abbate disclose means that perform steps (d)-(f) of claim 1, it is inherent Vitenberg in view of Uppunda et al., Crawford and Abbate has disclosed the steps recited on lines 24-29.

Furthermore, It is inherent/implicit that the xDSL modem includes a generating step/means and a modulating step/means in order to provide the pulse length modulated signal for transmission to the xDSL modem in the central office, as recited in claim 1, lines 19-23 and claim 9. Furthermore, it is implicit that the signal must have a spectrum within the xDSL frequency band (as recited in claim 9) in order for the signal to be successfully transmitted to the xDSL modem in the central office.

23. With regard to claim 2, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention including commencing a start-up procedure (see "initialization state" in Vitenberg, page 26, second paragraph) when it is switched to operation mode.

24. With regard to claim 3, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention except specifically disclosing periodically transmitting the wake-up signal. Since the xDSL modem within the central office switches back to sleep mode (see Vitenberg, page 27, last two lines), it is implicit that the xDSL user modem must re-transmit a wake-up signal in order establish communication with the xDSL modem within the central office thereby reading on the limitation.

25. With regard to claim 4, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention including switching the xDSL modem within the central office from operation mode to sleep mode when the data transfer is complete. (See Vitenberg, page 27, last two lines)

26. With regard to claim 10 (assuming that it depends from claim 9), Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention except for

specifying that the wake-up bit pattern comprises 16 bits. It would have been an obvious matter of design to one of ordinary skill in the art at the time the invention was made to choose the number of bits in the bit pattern based on system considerations such as processing time for determining whether the wake-up bit pattern has been received. For example, the longer the bit pattern, the more time is needed to analyze the received bit pattern before generating the wake-up command. Furthermore, the number of bits does not affect the functionality of the system.

27. With regard to claim 11 (assuming that it depends from claim 9), Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention since each bit of the wake-up bit pattern determining the duration of a pulse length of a pulse of the pulse length modulated wake-up signal is an inherent characteristic of pulse length/width modulation.

28. With regard to claim 17, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention including VDSL modems. (See Vitenberg, page 13, last paragraph - page 14, first paragraph).

29. With regard to claim 18, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention including the data transfer medium being a telephone line. (See Vitenberg, Figure 1)

30. With regard to claim 19, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention. Since the recited features correspond to those in claims 1, 8 and 9, the explanation of how the references read on claims 1, 8 and 9 also applies to claim 19.

31. Claims 5-7, 15, 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vitenberg in view of Uppunda et al., Crawford and Abbate as applied to claim 1 above, and further in view of Abbey (US Patent No. 6,396,953 B1).

32. With regard to claims 5 and 6, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention except for incrementing a detection counter when the wake-up bit pattern is detected and generating a signal when the detection counter reaches a threshold value. Abbey teaches counting the number of bit pattern matches and indicating when the number exceeds the threshold. (See Figure 3 and column 6, lines 20-26) It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teaching of Abbey (via the use of a counter) in the method disclosed by Vitenberg in view of Uppunda et al., Crawford and Abbate in order to provide redundancy and avoid accidentally switching to operation mode. Using a counter and a threshold value requires multiple reception of the wake-up bit pattern before a wake-up command is generated thereby minimizing the risk of inadvertently switching the modem to operation mode if only a single wake-up bit pattern is used.

33. With regard to claim 7, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention except for adjusting the threshold value. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an adjusting threshold value in order to have greater flexibility.

34. With regard to claims 15 and 16, Vitenberg in view of Uppunda et al., Crawford and Abbate disclose the claimed invention including a register and comparator. (See Uppunda et al., column 3, lines 48-55) Although Vitenberg in view of Uppunda et al.,

Crawford and Abbate does not explicitly disclose the pulse length detecting circuit, it is inherent that a bit value must be assigned based on a detected pulse length/width since pulse width modulation involves varying a pulse width according to the bit value. The received modulated signal must be demodulated or converted to bit(s) before it can be compared with the stored bit pattern.

However, Vitenberg in view of Uppunda et al., Crawford and Abbate does not teach the synchronization means and the counter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a synchronization means in order to accurately recover the transmitted data.

Abbey teaches counting the number of bit pattern matches and indicating when the number exceeds the threshold. (See Figure 3 and column 6, lines 20-26) It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teaching of Abbey (via the use of a counter) in the system disclosed by Vitenberg in view of Uppunda et al., Crawford and Abbate in order to provide redundancy and avoid accidentally switching to operation mode. Using a counter and a threshold value requires multiple reception of the wake-up bit pattern before a wake-up command is generated thereby minimizing the risk of inadvertently switching the modem to operation mode if only a single wake-up bit pattern is used. Furthermore, using an adjustable threshold provides greater flexibility.

35. With regard to claim 21, Vitenberg in view of Uppunda et al., Crawford, Abbate and Abbey disclose the claimed invention. Since the recited features correspond to

those in claims 8 and 15, the explanation of how these references read on claims 8 and 15 also applies to claim 21.

Conclusion

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272 - 2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Betsy L. Deppe
Primary Examiner
Art Unit 2637